










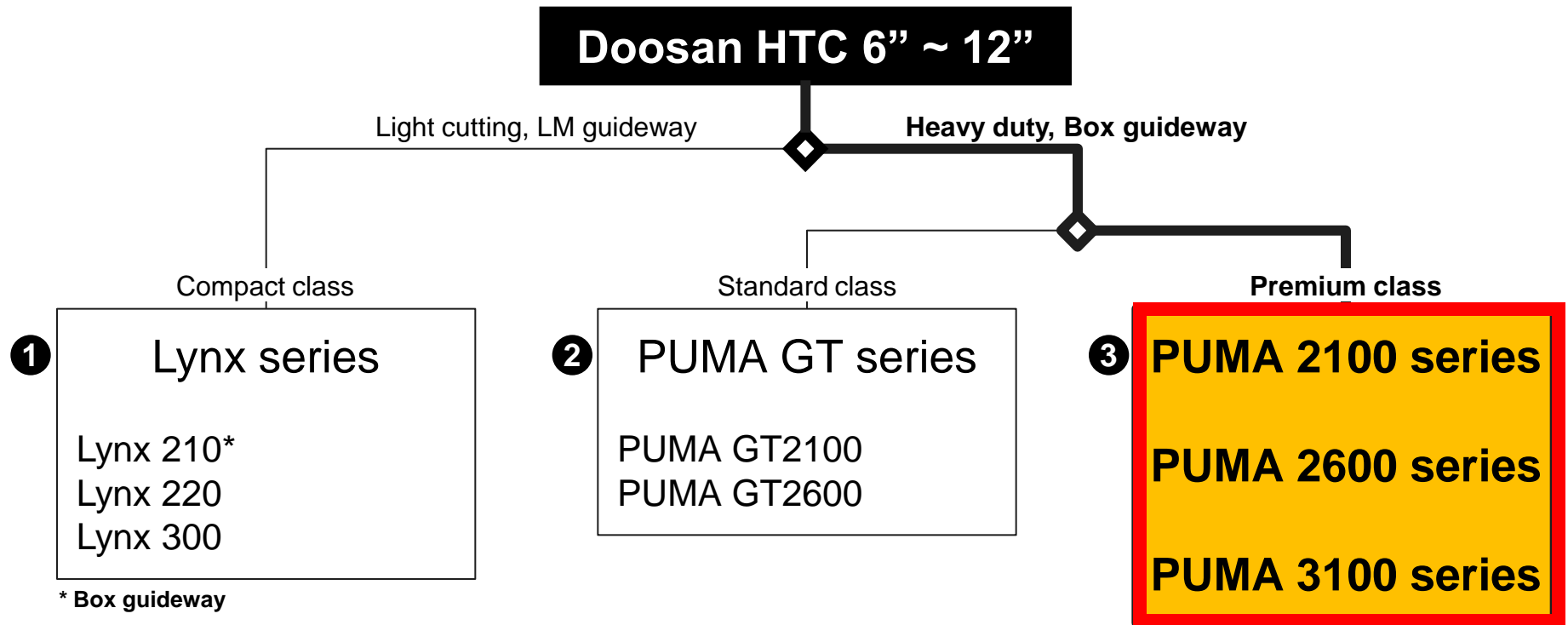


A-1. Horizontal TC

Chuck size (inch)	a	b	c	d		e		f	g		
	Small size HTC		Medium size HTC	Large size HTC	Multi-tasking HTC		Twin turret HTC		2spindle HTC	Aluminum Wheel turn HTC	
	Lynx series	PUMA GT series	PUMA series		PUMA SMX series	PUMA MX series	PUMA TT series	PUMA TL series	PUMA HT/QL series	PUMA AW series	
											
6	Lynx 210 Lynx 220A					MX1600	TT1500		HT230T		
8	Lynx 220B Lynx 220C	GT2100	PUMA 2100			MX2100	TT1800 TT2000	TL2000	H250T QL200H		
10	Lynx 300	GT2100B GT2600	PUMA 2600			SMX2500	MX2600	TT2500	TL2500	H310T QL300H	
12			PUMA 2600B PUMA 3100	PUMA 400A		SMX3100	MX3100				
15				PUMA 400B							
18					PUMA 600						
21				PUMA 400C PUMA 480							
24					PUMA 700						
32					PUMA 800						
Big bore				PUMA 480D (275mm)	PUMA 800B (375mm)						
Wheel dia.										AW560(20") AW660(24")	

a Small size HTC

Concept...



a-3 PUMA 2100/2600/3100 series



Chuck size (inch)	Bar working dia. (mm)	Max. turning dia. (mm): 2ax/M	Max. turning length (mm): 2ax/M	2 axis	M	S	MS	Y	SY
				X/Z axis	2 axis + Milling	2 axis + Sub spindle	2 axis + Milling + Sub spindle	2 axis + Milling + Y axis	2 axis + Milling + Y axis + Sub spindle
8	65	390/300	562/513	PUMA GT2100	PUMA GT2100M				
		480/406	520	PUMA 2100	PUMA 2100M	PUMA 2100S	PUMA 2100MS	PUMA 2100Y	PUMA 2100SY
			760	PUMA 2100L	PUMA 2100LM	PUMA 2100LS	PUMA 2100LMS	PUMA 2100LY	PUMA 2100LSY
10	81	390/300	562/513	PUMA GT2100B	PUMA GT2100MB				
		460/410	658/610	PUMA GT2600	PUMA GT2600M				
		460/410	1078/ 1030	PUMA GT2600L	PUMA GT2600LM				
	76		520	PUMA 2600/500	PUMA 2600M/500				
		480/376	760	PUMA 2600	PUMA 2600M	PUMA 2600S	PUMA 2600MS	PUMA 2600Y	PUMA 2600SY
			1280	PUMA 2600L	PUMA 2600LM	PUMA 2600LS	PUMA 2600LMS	PUMA 2600LY	PUMA 2600LSY
12	102		630/565	PUMA 300C	PUMA 300MC				
		400/355	1280/ 1215	PUMA 300LC	PUMA 300LMC				
			760	PUMA 2600B	PUMA 2600MB	PUMA 2600SB	PUMA 2600MSB	PUMA 2600YB	PUMA 2600SYB
		480/376	1280	PUMA 2600LB	PUMA 2600LMB	PUMA 2600LSB	PUMA 2600LMSB	PUMA 2600LYB	PUMA 2600LSYB
			760	PUMA 3100	PUMA 3100M			PUMA 3100Y	
			1280	PUMA 3100L	PUMA 3100LM			PUMA 3100LY	
		525/420	2125	PUMA 3100XL	PUMA 3100XLM			PUMA 3100XLY	
			3125	PUMA 3100UL	PUMA 3100ULM			PUMA 3100ULY	

Chuck size

PUMA 2100 / 2600 / 3100 Series



Major spec.

- Swing over bed : 780 mm / 840mm
- Max. turning dia. : $\Phi 376$ mm / $\Phi 420$ mm
- Max. turning length
 - P2100 : 520 / 760 mm
 - P2600 : 520 / 760 / 1,280 mm
 - P3100 : 760 / 1,280 / 2,125 / 3,125mm
- Sp. motor power / torque / speed
 - P2100 main : 18.5 kW / 183 Nm / 4,500 r/min
 - P2600 main : 22.0 kW / 240 Nm / 3,500 r/min
 - P3100 main : 22.0 kW / 1,123Nm / 2,800 r/min
 - Sub-spindle : 7.5 kW / 85Nm / 4,500 r/min



Machine Models

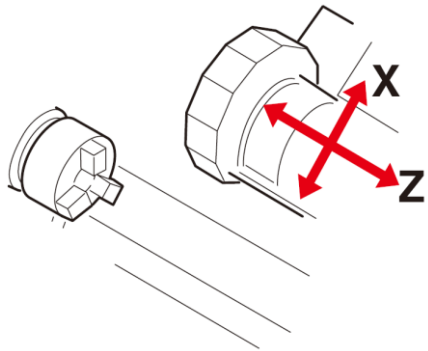
- PUMA 2100, 2100L (M, S, MS, Y, SY)
- PUMA 2600/500 (M), 2600, P2600L (M, S, MS, Y, SY)
- PUMA 2600B, 2600LB
- PUMA 3100, P3100L, P3100XL, P3100UL (M, Y)

Features

- New Machine Cover Design
 - Enhanced accessibility for maintenance
- Belt Drive Spindle (Main & Sub)
 - (Built-in Spindle as option.)
- High output Spindle (Option)
- Full C-axis Control (Main & Sub)
- Servo Driven Tail Stock (Option)
- BMT 65P Milling Head (Preci-Flex)
 - Face & Taper Dual Contact
 - ER Collet & PF-Adaptor Compatible
- Increased Rotary Tool Power (5.5 kW)
- Widened and thickened Rigid Box Guide Ways
 - (Hardened & Ground)
- Newly modified Chip Skirt for Zero Coolant Leakage.
- Isolated heat source from the Head Stock.

MODEL VARIATION BY FUNCTIONS

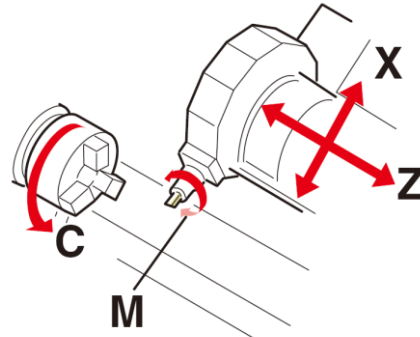
Turning



- / L

XL / UL

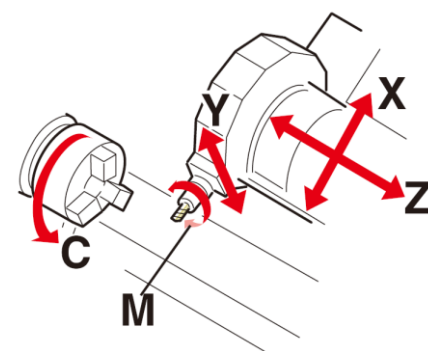
Mill-turning



M / LM

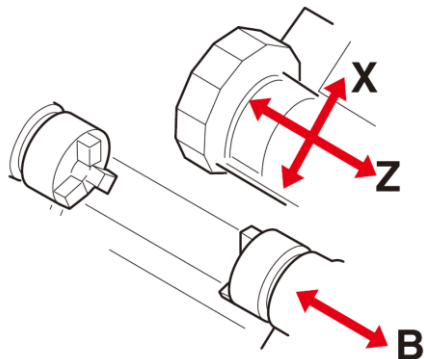
XML / ULM

Y-axis mill-turning

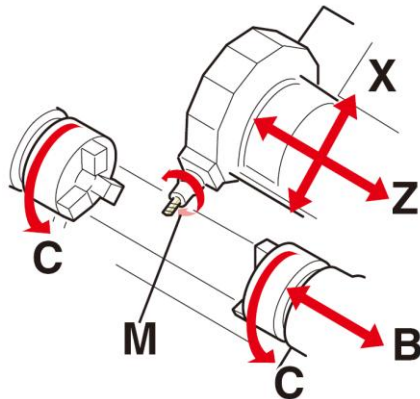


Y / LY

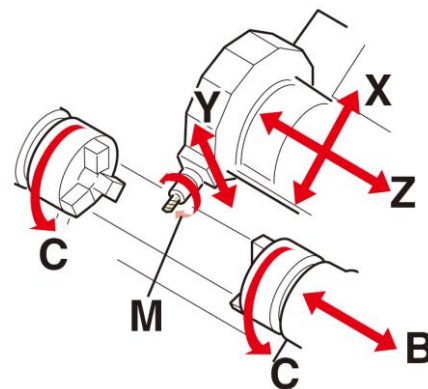
XY / ULY



S / LS

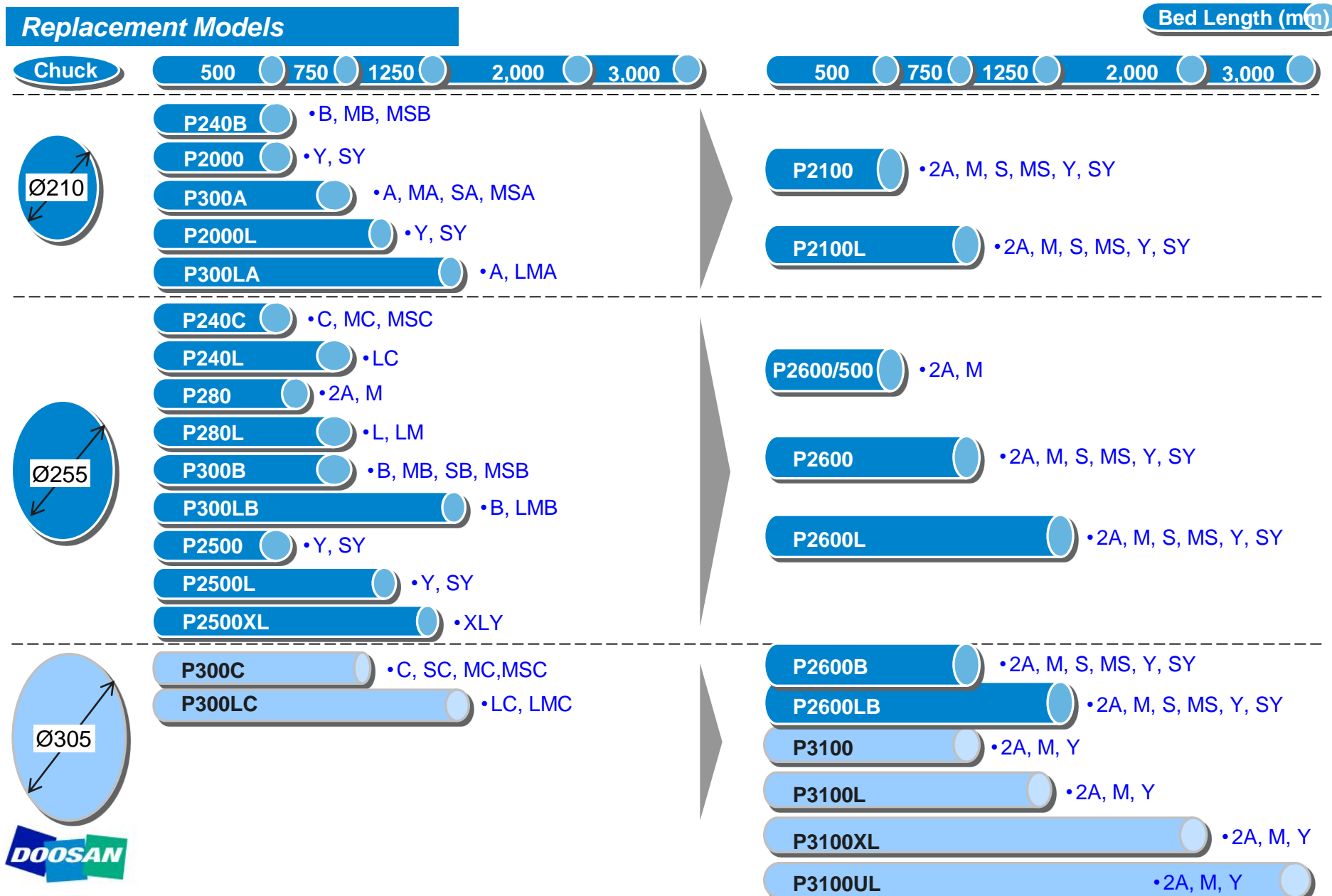


MS / LMS



SY / LSY

MODEL VARIATION BY WORKING CAPACITY



PUMA 2100 / 2600 / 3100 Series

Machine Configuration

Main Spindle

- P2100 : 8"
- P2600 : 10"
- P3100 : 12"
- Belt Type (Std.)
- Built-in Motor Drive (Opt. ; Y/SY)

Tool Post

- 2A Turning (25mmOD, 50mmID)
- Milling Turret
 - BMT55P(on P2100)
 - BMT65P(on P2600/3100)
 - 5.5kW / 47N.m

Carriage

- Opt. Y axis : Y / SY models

Sub-Spindle

- Belt Type
- Built-in Motor Drive (Opt. : SY)
- Std. : 6"

Bed

- P2100 : 500, 750mm
- P2600 : 750, 1250mm
- P3100 : 750, 1250, 2000, 3000mm
- Slant Angle : 30°
- Box Guide Way

Tail Stock*

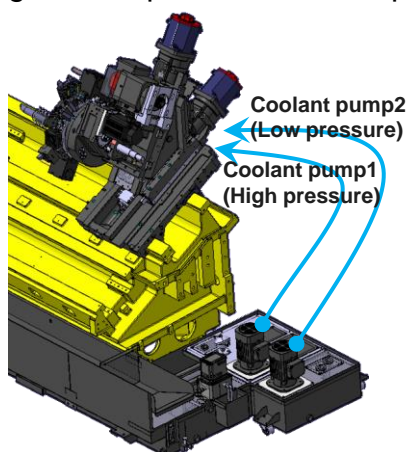
- Manual Type
- Program. Type (Opt.)
- Servo Driven (Opt.)

3-1 PUMA series _ PUMA 2600LSY Upgrade, PUMA 3100ULY Upgrade

Sales points...

Higher Accuracy

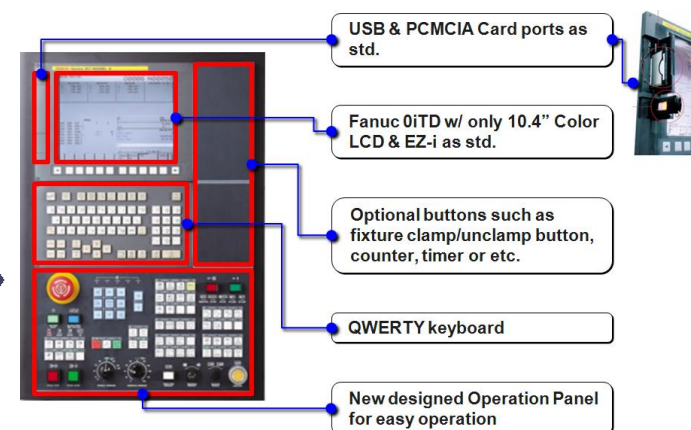
- Applied Low friction Ball Screw to minimize thermal displacement of all axes
- C-axis positioning accuracy enhanced (only built-in motor) 60"→30"
- Applied Package(Opt.) to minimize thermal displacement
- Coolant chiller
- Oil mist collector
- Thermal error compensation software
- High + Low pressure coolant pump



Higher power

- X axis servo motor power up to improve X axis turning performance of P2100/L/S/LS & P2600/L/S/LS 1.6kW→3kW

New OP for convenience



Higher Productivity 11% up

- Shortened cycle time
- Optimized PMC Ladder software and Acc./Dec. time
- Improved spindle response characteristic using FSSB (Fanuc serial servo Bus) Link

	Turning (G71)	Threading (G76)	Rigid tapping	Polar milling	Yaxis milling	Composition control	(Unit: second)
Previous	38.9	14.5	34.8	25.6	23.4	11.0	148.3
Improvement	37.0	11.0	29.4	24.8	19.9	9.6	131.7

11% up

Premium Plan of PUMA 2100/2600/3100

From Now on,
the stories were introduced in DIMF 2013

Upgrade

Higher Accuracy

Applied Low friction Ball screw

Thermal Package added (OPT.)

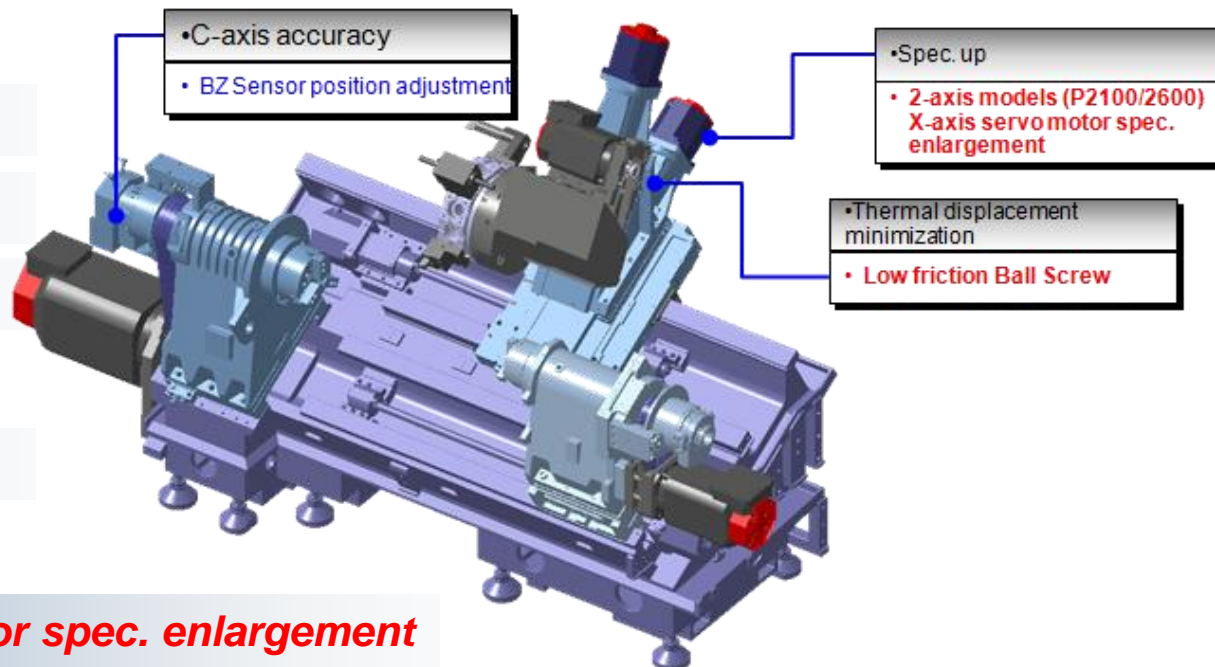
C-axis accuracy enhanced

Productivity

Shortened cycle time

Spec. up

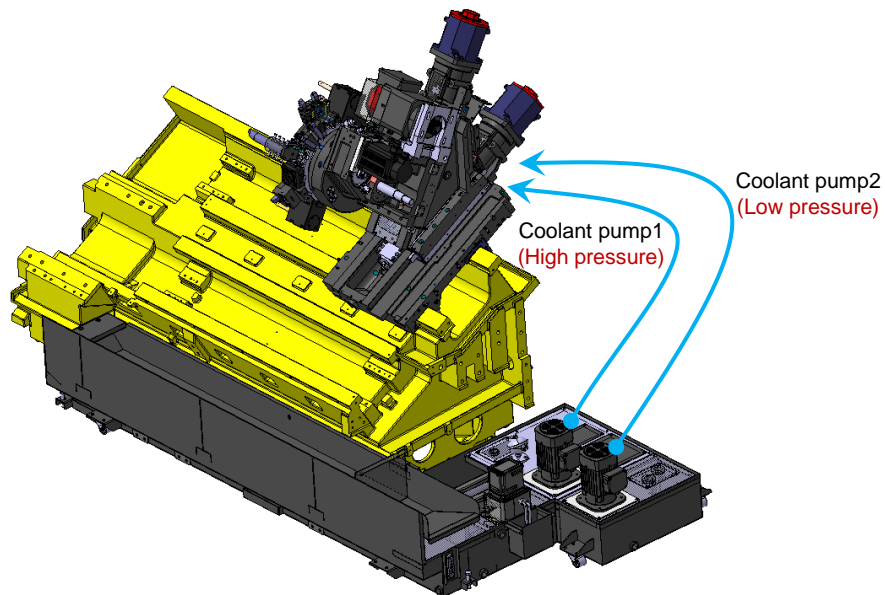
P2100/2600 2A model X-servo motor spec. enlargement



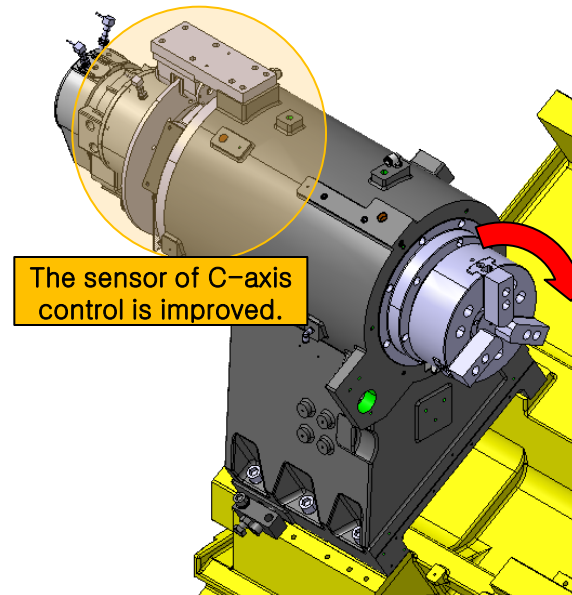
•Thermal Package	•Productivity
• High + Low Seperated Coolant Pump	• Shortend cycle time
• Coolant Chiller / Oil Mist Collector	
• Thermal compensation S/W	

Higher Accuracy

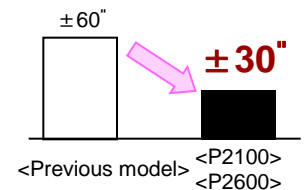
- Low friction Ball Screw
- Thermal package (OPT.)
 - : Coolant chiller
 - : Dual coolant pump
 - : Mist collector
 - : Thermal compensation S/W



<Concept of dual coolant pump>



Improvement of the C-axis control precision (Only built-in motor)



Productivity

P2100SY

	Original	Change	Result
Turning (G71)	38,944	37,04	4.9%
Thread (G76)	14,544	10,976	24.5%
Rigid tap	34,768	29,37	15.5%
Polar mill	25,6	24,816	3.1%
Y-axis ill	23,408	19,936	14.8%
composition control	10,992	9,552	13.1%
			12.7%

■ PMC Ladder software optimization and Acc./Dec. time optimization

■ Improvement of Spindle response characteristic using FSSB(Fanuc serial servo Bus) Link

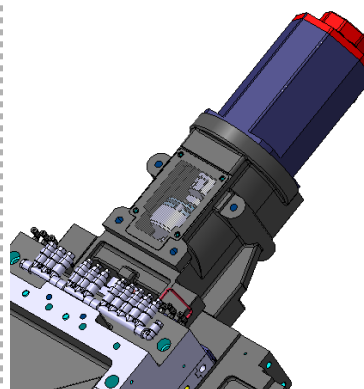
Reduce approximately 10% on overall Program !

Especially, outstanding result on rigid tapping !

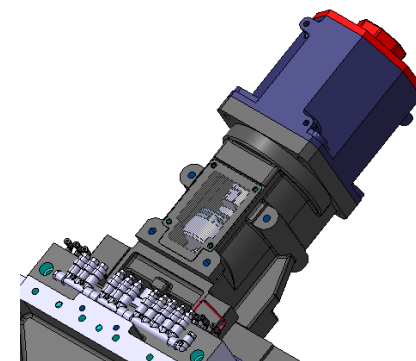
Spec. up

► 2 Axis model(P2100/L/S/LS, P2600/L/S/LS)
X-Axis servo motor was enlarged (from May. 2013)

► Now, X-axis motor is Alpha 12
► X-axis motor power is increased



Alpha 8

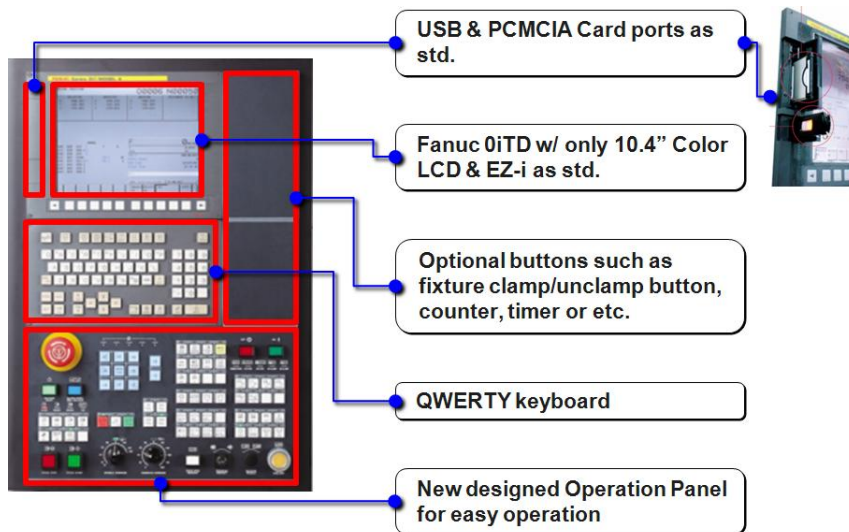


Alpha 12

Convenience

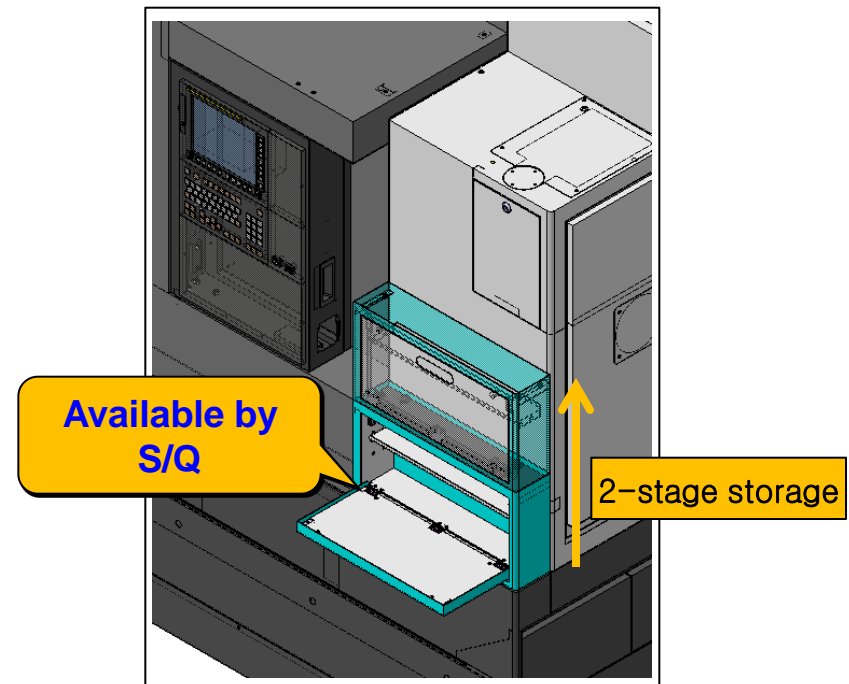
NEW OP

- ▶ Simple & Compact
- ▶ Integrate control key
- ▶ Easy operation & maintenance
- ▶ Easy to add optional button



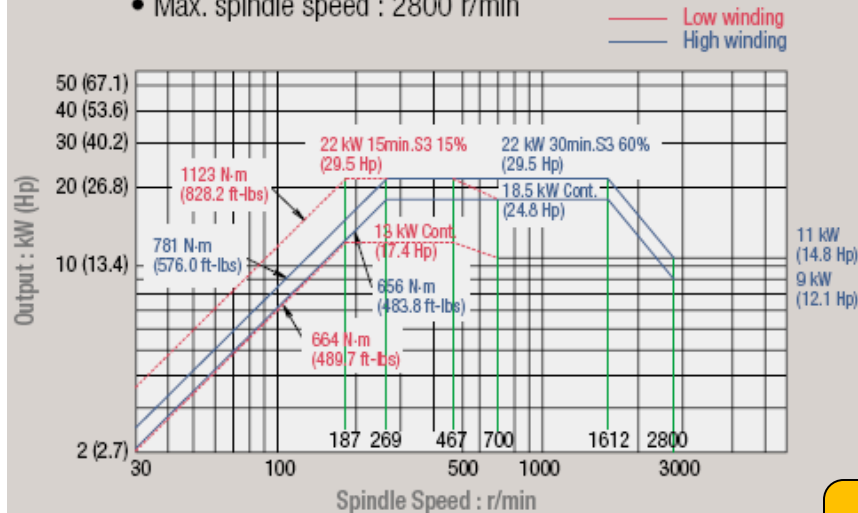
Introducing storage at front side, the convenience of operator is up

- ▶ Provide 2-stage storage
- ▶ Possible to expand another storage



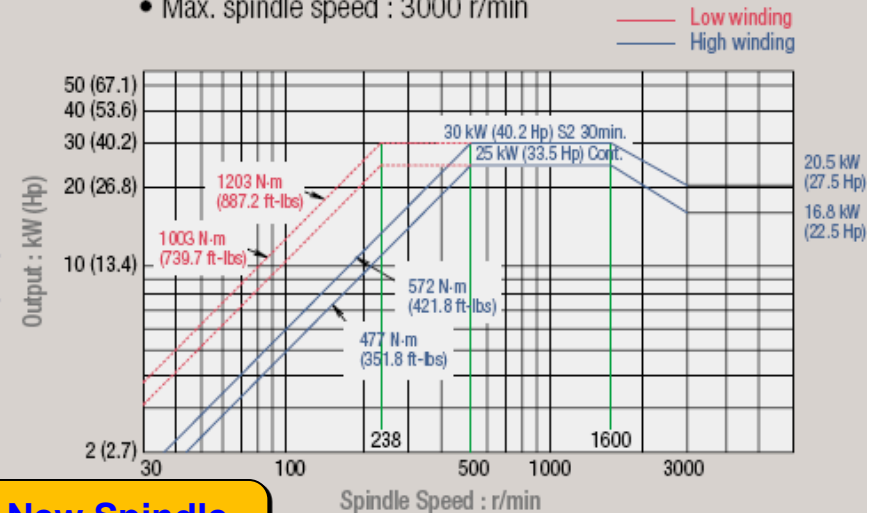
Belt Type **Std.**

- Spindle motor power : 22 kW (29.5 Hp)
- Max. spindle speed : 2800 r/min



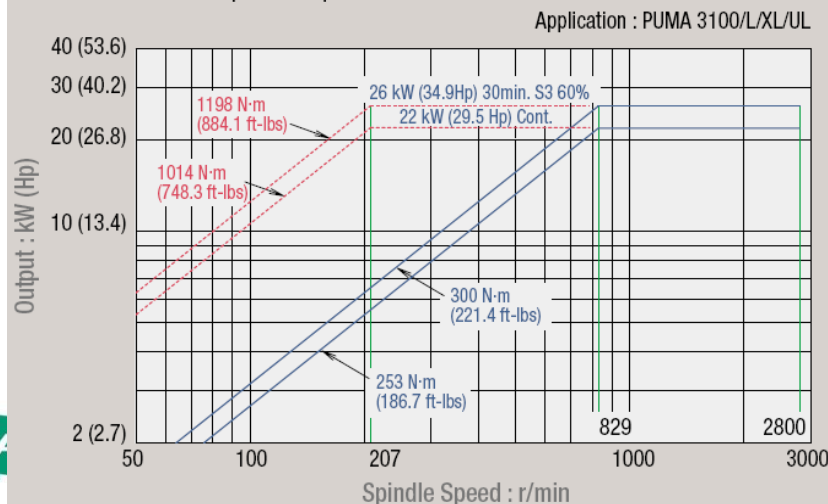
Built-in Type **opt.**

- Spindle motor power : 30 kW (40.2 Hp)
- Max. spindle speed : 3000 r/min



Belt Type with Gear Box **opt.**

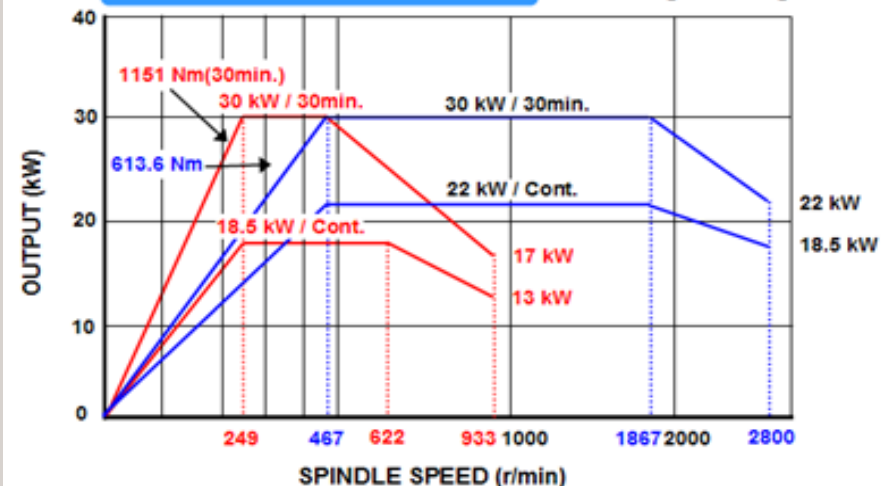
- Spindle motor power : 26 kW (34.9 Hp)
- Max. spindle speed : 2800 r/min



New Spindle Motor Added

P3100 (12") - αP60/4500i

Low winding **opt.**
High winding



Thermal Error Compensation Display

00013 N00000000

UPPER

SECOND COUNT 0000 RAPID-MOVE COUNT 000.00
FLAG NUMBER 0000 RAPID PERCENT 000.00
10min AVERAGE 000.00

SET RAPID OVERRIDE 100% READ ONLY

AXIS	TYPE	WARM	MXER	COOL	SECT	Inc Rate	Max Comp	Dec Rate		
X	DFLT	1 min	60 um	1 min	A	1.00 um/min	5.0 um	1.00 um/min		
					B	2.00 um/min	10.0 um	2.00 um/min		
					C	3.00 um/min	15.0 um	3.00 um/min		
	BUFF	0.0 X 1.0 um			CAL	0.00 um/min	0.0 um	0.10 um/min		
	TRNS	-60.0 um			BUFF	0.00 X 1.0 um		TRNS	0.00um	
Z	DFLT	1 min	60 um	1 min	A	4.00 um/min	10.0 um	4.00 um/min		
					B	5.00 um/min	15.0 um	5.00 um/min		
					C	6.00 um/min	20.0 um	6.00 um/min		
	BUFF	0.0 X 1.0 um			CAL	0.00 um/min	0.0 um	0.30 um/min		
	TRNS	-60.0 um			BUFF	0.00 X 1.0 um		TRNS	0.00um	

TOTAL COMPENSATION

X-AXIS Z-AXIS
-60.0 + 0.00 = -60.0

JOG ***** 19:45:02 PATH1

ON	CLEAR	X -	Z -	LX%	LZ%	NFX%	NFZ%
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Normally this this display is hidden.

After the pattern parameters are determined, the compensation function can be used